

# Climate Science in the Courts

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# Climate Science in the Courts

*Marjan Peeters*

## INTRODUCTION

This chapter explores the use of climate science in the courtroom.<sup>1</sup> While already many claims arguing for more ambitious climate action are brought to national courts across the world, also the EU faces a fundamental legal challenge filed by a group of citizens and their families, most of them living in EU member states, but some of them even outside the EU. These people state that they are affected by climate change—experiencing consequences for their homes, livelihoods, traditional family occupation and culture—and with the court procedure they aim to

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<sup>1</sup>The research for this contribution was finished in March 2018; only some later developments could only be concisely included.

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enforce a sharpening of existing EU climate change legislation.<sup>2</sup> Their claim is largely based on scientific insights such as produced by the Intergovernmental Panel on Climate Change (IPCC) (The People’s Climate Case 2018). The Panel’s main task is to make the enormous amount of scientific articles and reports, particularly in the field of natural science, accessible for policy-making. In this way, the IPCC aims to provide insight into the state of affairs of knowledge regarding climate change so that well-informed governmental decisions can be made, and, consequently, it provides key input for international negotiations in the context of the United Nations Framework Convention on Climate Change (Meyer 2016). However, reports from the IPCC (and other scientific reports) may also be used in the courtroom. The influence of climate science on judicial decisions that intervene into governmental decision-making regarding emission reduction policies can already be identified, as can be illustrated with two seminal court decisions laid down in the US and Europe. This trend may increase in the near future, particularly if governments will not adopt greenhouse gas reduction policies and laws that according to potential claimants are necessary for achieving the objectives of the Paris Agreement.<sup>3</sup> If the center of decision-making for greenhouse gas emissions reductions indeed would move from the political sphere to the courtroom, with judges finding ground for their verdicts in scientific reports, there is a need to observe and discuss how this shift of power takes place, and how then the power of science in this respect can be legitimized and controlled. Hence, while verdicts ordering governments to adopt more ambitious climate action may be of great value for implementing the goals of the Paris Agreement, the potential strong and influential role of the judiciary—which may evolve into a shift of the center of decision-making to courts instead of the democratically elected institutions—needs examination by legal scholarship. More

<sup>2</sup>Carvalho and Others v Parliament and Council, Case T-330/18 (date of lodging 23 May 2018). See for further information from the claimants The People’s Climate Case (2018) about the claim and the claimants.

<sup>3</sup>The Paris Agreement was adopted on 12 December 2015 by the Parties to the United Nations Framework Convention on Climate Change (Decision FCCC/CP/2015/L.9, “Adoption of the Paris Agreement”, 12 December 2015) and discussed by *inter alia* Bodansky (2016) and Montini (2015). The objectives of the Paris Agreement are formulated in article 2, including the aim to hold “(...) the increase in the global average temperature to well below 2 °C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5 °C above pre-industrial levels (...)”.

particularly, by identifying to what extent and under which circumstances judicial interventions into governmental decision-making are made, it can be revealed whether or not judgments tend to be activist (see about complications for identifying judicial activism, particularly with regard to the Court of Justice of the EU: Dawson 2014). In course of this, one of the relevant elements to be explored is investigating to what extent and how scientific arguments play a role in the judicial argumentation in climate litigation cases. More particularly, it can be revealed to what extent climatic science gets debated and, perhaps, even contested in the courtroom. However, thus far, there is only limited attention to this specific issue in the climate law literature, and this chapter aims to further the debate. Section “[A Legal Perspective on the IPCC](#)” sets off by putting a legal perspective on the IPCC, thereby revealing some critical observations on the IPCC, hereby illustrating the need to find out against which legal principles this influential organisation can or should be held to account. Section “[Case Law Regarding the Mitigation of Greenhouse Gas Emissions: The Role of Climate Science](#)” proceeds with an orientation of how in some selected cases climate science has played out in the courtroom. In these cases interventions in governmental decision-making were made, and it will be presented how legal literature has assessed the role of science in this regard. Section “[Reflection](#)” will present some preliminary reflections on the potential shift of power for decision-making from governments to the reinforcing set of climate science and the courts. Section “[Conclusion](#)” concludes, stipulating the need for systematic surveys on the use of the (global) climate science in (national but also EU and other international) litigation, and presenting two main research perspectives.

## A LEGAL PERSPECTIVE ON THE IPCC

### *A Hybrid Global Administrative Law Construct: How to Hold It to Account?*

The IPCC was established in 1988 under the auspices of the United Nations Environment Program and the World Meteorological Organization, and its establishment was endorsed by the United Nations General Assembly (United Nations General Assembly 1988). The objective of the IPCC is broad: it has to “assess on a comprehensive, objective, open and transparent basis the scientific, technical and socio-economic information

relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts and options for adaptation and mitigation” (Intergovernmental Panel on Climate Change 1990/2013, para. 2). Meanwhile, the IPCC has manifested itself as the most important informational source for climate change policy making. This important position does not mean that the IPCC’s credibility has not been called into question (Meyer 2016). Also in literature, critical observations are discussed (Ravindranath 2010; and, earlier, Henderson 2007). Illustrative is that as a result of mistakes in IPCC reports, the InterAcademy Council assessed the IPCC in 2010, suggesting a reform of its procedures (InterAcademy Council 2010). Also in literature suggestions for reform are presented, such as a greater integration of the IPCC with the UNFCCC (Meyer 2016). Zorita called for an even more dramatic reform, particularly by turning the IPCC into an independent international agency (Zorita 2010, p. 731). Furthermore, one of the critical observations on the IPCC decision-making is that the consensus-based approach may imply that scientific findings deviating from the mainstream are ignored or excluded (Beck et al. 2014). It is also argued that deviations from agreed procedures may impact negatively on the credibility of the IPCC (Lohan 2006, p. 308). Furthermore, the practice of keeping the meeting of the Summary for Policymakers secret has been criticised (French and Pontin 2016, p 18; Beck 2012, p. 165).

An important principle is that IPCC-reports should be “policy neutral” (IPCC 1990/2013, para. 2). The principle of policy neutrality can be put in perspective of the principle of sovereignty of states. The IPCC is constructed in a rather informal way; it is not established by means of a treaty among states, which is the traditional legal construct under which states may give away part of its sovereignty—such as the freedom to design the ambition and form of its national climate policies—to international decision-making bodies. In essence, the IPCC cannot be qualified as a formal international authority with administrative power that can bind states. Instead, it tends to be an international soft-law construct with participation by scientists and governmental representatives—the latter convening in the plenary that adopts IPCC reports. The fact that governments participate in the IPCC may even be required from an international law perspective, particularly in view of the international law principle that states have the duty to co-operate with each other, which includes scientific cooperation (Stoll 1996, pp. 72–73). It can however be questioned to what extent governments may have an influence on scientific output from

the IPCC. Although practice may be different by now, it was observed there is a scientific core in the working groups of the IPCC, a balance between science and policy in the working group plenaries, and political dominance in the full IPCC plenary (Andresen and Skjaereth 2007, p. 192). More recently, Meyer observed that despite various provisions “(...) doubts remain of the political influence (...)” (Meyer 2016, p. 445).

Furthermore, it seems inevitable that IPCC reports may need to deal with factors relevant to the design and application of particular policies: if that is the case, such discussion have then to be done “objectively” (Intergovernmental Panel on Climate Change 1990/2013, para. 2). In this vein, a working group of the IPCC has observed the important policy dimension the IPCC faces since many areas of climate decision-making involve value judgments and ethical considerations (Edenhofer et al. 2014, p. 5). Nonetheless, the working group holds that research can still provide input to such policy-making: “Social, economic and ethical analyses may be used to inform value judgements and may take into account values of various sorts, including human wellbeing, cultural values and non-human values” (Edenhofer et al. 2014, p. 5).

A core question is whether governments are bound by IPCC reports. Navraj Singh Ghaleigh argued that, given the specific informal construct of the IPCC, the “regulatory activities of the IPCC” do not affect—along the lines of international law—states either by binding norms or “soft” obligations (Singh Ghaleigh 2016, p. 59). However, while in this sense no legal bindingness can be derived from IPCC reports, it is not to be excluded that they may have a large impact on governmental policy development or even discussions and adjudications in the courtrooms. In this sense, the question of how the current IPCC can be held to account deserves attention from a legal perspective. In course of searching for a methodology to discuss the IPCC from a legal perspective, several authors have pointed at the possibility to assess the IPCC through the lens of the emerging “Global Administrative Law” theory, with which the IPCC could be assessed in view of core legal values such as accountability and transparency (Singh Ghaleigh 2016). Daniella Hanna Rached holds that “Global Administrative Law” is useful to pinpoint a set of legitimacy and effectiveness-building devices for the IPCC decision-making routines (Rached 2014, p. 34). However, more legal research is needed in order to “catch” the hybrid, soft law construct of the IPCC into a legal perspective, thereby keeping in mind to avoid “rigid legalistic thinking” that could take away necessary flexibility (Jasanoff 2013, p. 452).

This relates to the more fundamental issue of whether indeed a common global administrative law set of administrative law principles can be identified, and whether such a common set of principles even would be desirable (critically: Harlow 2006). While it needs to be further examined against which principles the IPCC can be held to account, the influence of the IPCC increases. The progression of governmental policies across the world for taking action to combat climate change, which can be illustrated by the conclusion of the Paris Agreement in December 2015, finds its basis in IPCC reports pointing at the fact that “Human influence on the climate system is clear” (Stocker et al. 2013, p. 15). Also for the near future, input from the IPCC for international policy-making is asked: the parties to the UNFCCC have invited the IPCC to provide a special report in 2018 on the impacts of global warming of 1.5 °C above pre-industrial levels and related global greenhouse gas emission pathways (United Nations 2015, para. 21).

### *Scientific (Un)Certainty in IPCC Reports and Policy Decisions*

The principle of “policy neutrality”, discussed above, implies that the IPCC should not suggest which decisions are the best ones to be adopted by governments, let alone judges. However, if an IPCC report, or, more specifically, a statement in such a report (or in any scientific article), presents indisputable facts, particularly regarding the cause and effects of the climate change problem, this can be used as a factual argument to justify governmental intervention into freedoms of private actors, particularly if this aims to protect human rights, or to support a legal claim submitted before the court requesting for more protective climate action.<sup>4</sup> However, if IPCC statements concern issues for which scientific uncertainty is yet the case, there is room for different policy decisions, including choosing different levels of risk.<sup>5</sup> Particularly in environmental law, scientific uncertainty as such does not mean that no legal action

<sup>4</sup>Also regulations refer to the obligation to take “scientific evidence” from the IPCC into account, see for instance article 14(3) from Directive 2003/87 from the European Parliament and the Council, as amended by Directive 2009/29.

<sup>5</sup>In this respect, it needs to be examined whether and, if so, to what extent from a human rights perspective, governments have discretion to set the acceptable risk level, both with respect to potential damage to nature and to human health. See for human rights and climate change: Foster and Galizzi (2016).

can be undertaken: in various jurisdictions the precautionary principle has emerged, with may justify action in case of scientific uncertainty. At the international level, the UN Rio Declaration on Environment and Development from 1992 formulated the precautionary approach in its article 15: “In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation”. The precautionary principle is for instance codified (but without definition) in article 191 TFEU. Also the UNFCCC refers to precautionary action: Parties should take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects (UNFCCC, art. 3(3)). This principle is however subjected to an intense scholarly debate, with on the one hand warnings against over-regulation and on the other hand recommendations for its use in order to adopt preventative action (Wiener 2007; De Sadeleer 2016).

Also the judicial testing of the precautionary principle is much debated (Marchant and Mossman [2004] take a very critical approach; a positive appreciation is given by Trouwborst [2006]). Part of the concern can be that judgments on the ambition of environmental decisions in cases of uncertainty may be inspired by personal beliefs, for instance on the urgency of the environmental problem at hand, and the belief that more stringent action is required than legislators do (Dawson [2014, p. 435] discusses more generally that personal beliefs may play a role in judicial decisions). Another concern is—in case courts want to move to an application of the precautionary principle in a situation of identified passivism at the side of the legislature or administrative authorities—that judges may become standard-setters in scientifically complex matters. Question is then whether judges are capable to set the appropriate norm (see for the struggle judges may face in understanding complex health or environmental issues: Vos 2004; Michanek 2007).

Given the uncertainty that is still inherently embedded into the climate science, a related question is to what extent the IPCC itself explicitly or more implicitly suggests in what ways the policy room can be filled in when uncertainty is the case, and, moreover, to what extent the international community convened into the UNFCCC is actually asking for such advice. For example, the fact that the IPCC is asked by the parties



to the UNFCCC to inform about “related global greenhouse gas emission pathways” in view of the impacts of global warming of 1.5 °C above pre-industrial levels seems to enable the IPCC to suggest what emission reduction ambition at a minimum has to be pursued. Such suggestions take clearly place in a context of uncertainty, assuming that it is difficult to predict precisely the (various) impacts of global warming of 1.5 °C in advance, let alone to predict what global emission level causes a precise temperature rise.

Given that the international public law community expects the IPCC to give important advice, its reports may (depending on their content and formulations) play an important and perhaps even decisive role in future case law, particularly if governments are not living up to the scientific insights. While it is hard to predict future developments, also in view of the question of how much discretion will be given by judges to policymakers, the next section will review, in retrospect, the role that IPCC reports have played thus far in a few selected seminal court decisions.

## CASE LAW REGARDING THE MITIGATION OF GREENHOUSE GAS EMISSIONS: THE ROLE OF CLIMATE SCIENCE

### *Methodological Observation: The Specific Characteristics of Jurisdictions Matter*

In practice, case law referring to IPCC reports has emerged and it may be expected that more has yet to come. While important overviews of case law exist, such as the charts on climate litigation produced by the Sabin Centre of Climate Change Law at Columbia Law School, in depth and comprehensive examinations of the different aspects of cases from several jurisdictions, among which particularly the scientific dimension, have yet to be carried out.

A methodological challenge for reviewing the influence of IPCC-reports on judicial decision-making is the existence of many different jurisdictions with their own specific legal frameworks for judicial adjudication across the world. A discussion of the role of IPCC-reports for case law development cannot be separated of how, in the specific legal systems in which the courts function, procedural rules and judicial practices have been developed that regulate the use of expertise by judges and, in a wider constitutional context, whether scientific reports may legitimate the judge to use its power to intervene into governmental decision-making. By

contrast, while national legal systems for judicial adjudication may largely differ, the IPCC-reports have by nature a global outreach and are the ultimate product of a single, global, organisation. Hence, the *same* organization, and perhaps even the *same* report, may have different influences on judicial decisions across jurisdictions. Moreover, not only the characteristics of a specific jurisdiction, but also the specific circumstances of the cases will be important to unravel the role of IPCC-reports in the courtroom: the specific claim submitted to the court delineates the dispute, and the specific information and arguments that the claiming and defending party share with the judges may have a large impact on the court decision as well. In this respect, also standing rules and the capacity of potential claimants (like environmental non-governmental organisations) may be of large influence whether cases will be started asking for more climate action. Nonetheless, in order to get some first understanding on how climate science has already played a role in court cases, this section will discuss a few selected seminal court decisions and related legal literature from the US (sect. “[The US: Science as a Starting Point for Judging the Need for Regulating Greenhouse Gases](#)”) and Europe (sect. “[Europe](#)”)<sup>6</sup> The aim of this discussion is not to draw a complete and detailed picture of how climate science plays out in the courtroom, but is rather to sketch how in important cases judges thus far have dealt with the scientific dimension.

### *The US: Science as a Starting Point for Judging the Need for Regulating Greenhouse Gases*

The “Massachusetts v EPA” decision from 2 April 2007 is the first case heard by the US Supreme Court regarding governmental regulation of greenhouse gas emissions, and concerned the determination of the existence of legal authority of the Environmental Protection Agency (EPA) to regulate greenhouse gases from transport. With a 5–4 majority the

<sup>6</sup>The US court decision that will be discussed in sect. “[The US: Science as a Starting Point for Judging the Need for Regulating Greenhouse Gases](#)” is framed as a “gateway case” and is characterised (in 2012) as the most significant environmental law decision of all time in the US (Markell and Ruhl 2012, p. 51); the Dutch Urgenda case to be discussed in sect. 3.4 is commonly called a revolutionary court decision since, for the first time, a court ordered a nation state to reduce its emissions more ambitiously. The lawyer co-defending the claim in first appeal wrote a book, titled *Revolution Justified* (Cox 2012).

Supreme Court held that the EPA had failed to justify adequately its denial that carbon dioxide and other greenhouse gases<sup>7</sup> were “pollutants” to be regulated under the Clean Air Act (*Massachusetts et al. v. Environmental Protection Agency et al.* 2007). In fact, the EPA did not want to assess whether greenhouse gases can be qualified as “air pollution ... reasonably ... anticipated to endanger public health or welfare” (Freeman and Vermeule 2007, p. 63). The Agency used various arguments, among which that regulation would be unwise because, at that time, “a causal link between greenhouse gases and the increase in global surface air temperatures was not unequivocally established”, thereby referring to a report from the National Research Council (*Massachusetts et al. v. Environmental Protection Agency et al.* 2007, pp. 1, 10).<sup>8</sup> Furthermore, part of the reasoning was based on the effectiveness of domestic regulatory action: “predicted increases in greenhouse gas emissions from developing nations, particularly China and India, are likely to offset any marginal domestic decrease.”<sup>9</sup> These considerations by the EPA were made before the Fourth Assessment Report of the IPCC was published in February 2007.<sup>10</sup> The Court, deciding just after the publication of the Summary for Policymakers for the Fourth Assessment Report,<sup>11</sup> found that the EPA cannot avoid its statutory obligation and noted: “If the scientific uncertainty is so profound that it precludes EPA from making a reasoned judgment, it must say so. The statutory question is whether sufficient information exists for it to make an endangerment finding” (*ibid.*, p. 5).<sup>12</sup>

<sup>7</sup> Methane, nitrous oxide, and hydro-fluorocarbons.

<sup>8</sup> See however also page 20: “EPA does not dispute the existence of a causal connection between man-made greenhouse gas emissions and global warming.”

<sup>9</sup> This reasoning takes place in the consideration of standing of the plaintiffs. See *Massachusetts et al. v. Environmental Protection Agency et al.* (2007, p. 21).

<sup>10</sup> The petition for regulation was filed in 1999, see the *Massachusetts et al. v. Environmental Protection Agency et al.* (2007, p. 6).

<sup>11</sup> The “Summary for Policymakers” of the fourth IPCC report was published in February 2007, so its major findings were well known and publicized prior to the Court’s decision in *Massachusetts et al. v. EPA* (Freeman and Vermeule 2007, p. 60).

<sup>12</sup> The dissenting opinion written by judge Scalia holds that the EPA has already said so (*Massachusetts et al. v. Environmental Protection Agency et al.* 2007, p. 8).

The Supreme Court put in its decision explicitly attention to science: “A well-documented rise in global temperatures has coincided with a significant increase in the concentration of carbon dioxide in the atmosphere. Respected scientists believe the two trends are related” (ibid., p. 1). By referring to what respected scientists “believe”, the Court set a firm basis for its judgment. The Court also described the history of the developments of scientific insights into climate change, referring to a report from 1979 from the National Research Council: “If carbon dioxide continues to increase, the study group finds no reason to doubt that climate changes will result and no reason to believe that these changes will be negligible. ... A wait-and-see policy may mean waiting until it is too late” (ibid., p. 4). Moreover, the Court also referred to the earlier second assessment report of the IPCC from 1995, which stated “... the balance of evidence suggests there is a discernible human influence on global climate” (ibid., p. 6). The Supreme Court moreover considered that “A reduction in domestic emissions would slow the pace of global emissions increases, no matter what happens elsewhere” (ibid., p. 23).<sup>13</sup>

The outcome of the Supreme Court decision is particularly interesting since judicial review of a refusal to promulgate rules is traditionally “extremely limited” and “highly deferential” (ibid., p. 25). The Court however found that the Clean Air Act would become obsolete if changing circumstances and scientific developments would not matter (ibid., p. 29). Since the main criterion for regulation is whether the air pollutants are “reasonably ... anticipated to endanger public health or welfare”, and given the development of science, the Supreme Court found the refusal to regulate illegal.

Clearly, the development of science has played a core role in this court decision, and the fact that uncertainties existed did not provide an opportunity for the EPA to refuse regulation. This can be linked to the statutory text which provides a competence to regulate even while full causal relationship lacks (since the statute includes the word “reasonably”).

The legal literature largely favours the outcome of this dispute (Freeman and Vermeule 2007; Sugar 2007; Osofsky 2007). Particularly

<sup>13</sup>This consideration was part of the reasoning whether the Court could hear the case, particularly seen from the requirement of redressability: it must be likely that a favourable court decision will redress the injury.

Freeman and Vermeule put the court decision in the context of the perceived manipulation of science by the then G.W. Bush administration.<sup>14</sup> In other words, these authors do not critically review how the court has used the science, but provide the context that might have stimulated the judges to favour the claim (Freeman and Vermeule 2007, p. 54). Regarding the role that science, and scientists, played in the court room, Freeman and Vermeule point out that the agency relied on selective and somewhat misleading excerpts from a 2001 report by the National Research Council which emphasized uncertainty while downplaying many statements of certainty or near-certainty (Freeman and Vermeule, 2007, p. 63). Scientists themselves even tried to inform the court that there was a misunderstanding or misrepresentation of science, pointing out EPA's mishandling of a scientific report and disregard of weight of evidence (Freeman and Vermeule 2007, in their footnote 43).

The 'Massachusetts v EPA' decision paved the way for the further development of climate law since judges, thereby referring to climate science, have found a denial of greenhouse gas regulation legally problematic. However, this does not imply that lawyers are per se sufficiently educated and equipped to deal with climate science. David S. Caudill has—already before the Supreme Court laid down its decision—discussed in a more general way how science is understood by judges (Caudill 2007). He distinguishes between (1) judges that have a realistic idea of science and (2) judges that may have a more romantic idea of science, expecting that scientists produce stable knowledge and that not much uncertainty remains. The first category seems to make better decisions:<sup>15</sup> “they do not expect too much from science, and they understand that the inevitable, pragmatic features of all science do not take anything away from scientific utility and progress” (Caudill 2007, p. 190). In the case at hand, the Supreme Court seems to have followed the realistic path and accepted that some uncertainty may exist for accepting the need to regulate, for which it was also important that the statute did not demand for full scientific certainty.

<sup>14</sup> “[A]dministration had been altering scientific reports, silencing its own experts, and suppressing scientific information that was politically inconvenient” (Freeman and Vermeule 2007, p. 57).

<sup>15</sup> At least in the case study that Caudell conducted, which was not related to climate change.

*Europe: Litigation at EU Level and at National Level*

*The European Union: Approving Climate Action Without Referring to Science*

Until now, IPCC reports have not yet played a prominent role in the case law of the Court of Justice of the European Union (CJEU),<sup>16</sup> while as such important court decisions related to the climate change problem have been laid down.<sup>17</sup> Already in 2001 the CJEU acknowledged that the emissions of greenhouse gases is one of the most important causes of climate change (Case C-379/98 *PreussenElektra AG v. Schleswag AG*, 2001, para. 73). This consideration was made in a case concerning the legality of a German national support system for renewable energy in view of the provisions on the internal market (*ibid.*, para. 71). Different from the US Supreme Court in the *Massachusetts v EPA* case, the CJEU did not refer to IPCC reports, or any other climate science, nor did it enter into a discussion of the causal relationship between anthropogenic emissions of greenhouse gases and the likely change of the climate, which phenomenon could justify the negative impact of national renewable energy support measures on the internal market. Instead, the Court points at the fact that the European Community (now the European Union) is a party to the UNFCCC from 1992 and the Kyoto Protocol, even though the latter was not yet into force at the time of the court decision and hence did not yet imply legal commitments for the Community. The Court notes that the “policy” (thereby referring to international and European climate measures) is also designed to protect the health and life of humans, animals and plants (*ibid.*, para. 75), and that a European Directive expressly stated that it is ‘for reasons of environmental protection’ to authorize Member States to give priority to the production of electricity from renewable sources (Directive 96/92/EC of the European Parliament and of the Council of 19 December 1996 concerning common rules for the internal market in electricity). In sum, the Court accepts, albeit only with general statements and without any reference to science, that renewable energy measures are needed as part of

<sup>16</sup> By then the court was called the Court of Justice of the European Communities, this court is called the Court of Justice of the European Union since the Treaty of Lisbon that entered into force on 1 December 2009.

<sup>17</sup> Only in a very technical manner, references are made to IPCC guidelines in two cases (C-80/16, with reference to IPCC in opinion, and C-460/15, with reference to IPCC in opinion and judgment).

climate change protection measures.<sup>18</sup> The approach by the Court based on rather opaque reasoning but leading to an environmentally friendly outcome has been criticized in literature. More specifically, Jacobs has argued that the court “... can only be found to have environmental friendly credentials but to have failed to provide an adequate conceptual basis for its approach” (Jacobs 2006, p. 194). From a legal perspective, it becomes worrisome if a clear and consistent basis for court reasoning lacks: the outcome of future judicial decision-making (and, basically, the insight into the law and its consequences) becomes uncertain. Since the use of expertise is a more general question of EU law that also takes place outside EU environmental, such as in food safety law, the question of how the court uses science and expert advice has got fundamental discussion in literature. In this respect, legal scholars have expressed some concerns on how the CJEU deals with (environmental) science. Barbier de La Serre and Sibony stated that the applicable law “does not guarantee a systematic, meaningful scrutiny of reliability of scientific evidence by the EC courts” (Barbier de la Serre and Sibony 2008, p. 94). Also Vos pointed at the fact that the question which role EU courts and experts should have in litigation gets limited attention in the EU (Vos 2013, p. 145). While positing that “judges should remain judges” she argues that the question of whether courts need to be assisted by appointed scientists or whether specialized courts need to be established merits further discussion (Vos 2013, pp. 161, 164). This may also become relevant in future climate change cases that may possibly be submitted to the CJEU. Related to this, it also remains to be seen how much deferral the CJEU will continue to give to the EU legislative institutions, particularly if it would be argued—on the basis of science—that more climate action is needed compared to what EU decision-making entails. Such legal action is now started before the CJEU (lodged on 23 May 2018), by means of a claim for annulment of three key EU climate laws pursuant to article 263 TFEU, and, in addition, a claim for non-contractual liability pursuant to articles 268 and 340 TFEU. Regarding the latter, it is argued that the EU has already been in breach of climate protection duties in the past (People’s Climate Case, legal summary, para. 6). The claim makes ample use of scientific insights,

<sup>18</sup>This approach has not changed, see C-573/12, (1 July 2014) Ålands Vindkraft AB v Energimyndigheten, para. 78, also referring to Article 194 TFEU (para. 81) and then followed by a proportionality test; C 204/12 to C 208/12 (11 September 2014) Essent Belgium NV v Vlaamse Reguleringinstantie voor de Elektriciteits- en Gasmarkt, para. 91.

including insights from a non-profit institution aiming to support science-based policy to prevent dangerous climate change (paras. 14 and 258 of the application). Moreover, the applicants invite the Court to consider whether it is appropriate to commission an expert's report, for instance related on the evidence for the damage caused by climate change to the applicants (para. 7 of the application).

*The Netherlands: Translation of a Scientific Emission Scenario into a Binding Norm*

In a seminal decision from 24 June 2015, a lower civil court in the Netherlands orders the State of The Netherlands to adopt more stringent emission reduction measures compared to what is required according to EU secondary climate law (*Urgenda v The State of the Netherlands*, Civil court of The Hague, the Netherlands, 24 June 2015, para. 4.43).<sup>19</sup> In its argumentation, the court heavily relies on IPCC reports and other science-related documents. This can be largely explained because of the circumstance of the case: the claim—submitted by an Environmental Non-Governmental Organisation (called “Urgenda”) together with 886 citizens referred intensively to a range of scientific reports (*Urgenda*). Important weight is given to the IPCC Working Group III report from 2007 in which an emission reduction scenario of 25–40% by 2020 (compared to 1990 emission levels) by developed countries as a group was projected alongside other emission reduction trajectories, with different risk levels (Metz et al. 2007, box 13.7, p. 776).<sup>20</sup> The claim also puts large emphasis on the fact that the 25–40% scenario—with which according to para. 21 of the claim there would a 50% probability that it will be possible to stay within a 2-degree Celsius temperature increase—has been adhered to by The Netherlands and the EU in several important political documents, also in the ambit of the UN Framework Convention on Climate Change (this concerns particularly the Bali Action Plan from 2007 adopted by the parties to the UNFCCC).<sup>21</sup> Moreover, a previous Dutch government adhered politically (but not by means of a legally

<sup>19</sup>The case is under appeal.

<sup>20</sup>This statement needs to be linked to a strategy that would keep the PPM below 450, see the claim paras. 136 and 203.

<sup>21</sup>Inter alia para's 21 and 27 of the claim, see Decision 1/CP.13; reference has been made to this table in the context of “emphasizing the urgency to address climate change”.



binding act) to the goal of 30% emission reductions in 2020,<sup>22</sup> which goal has been relaxed by a later government since it wanted to follow the EU goal: the EU has adopted legislation with the aim to achieve 20% reductions in 2020,<sup>23</sup> and expressed to be (only) willing to move to 30% reduction in 2020 if, shortly said, other countries also take meaningful action (Communication from the Commission to the European parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Towards a comprehensive climate change agreement in Copenhagen, 2009, p. 3).

The court decided positively on the claim asking for more ambitious mitigation action, finding a legal basis for constituting this in the unwritten standard of the duty to take care, which is a specific element of Dutch civil law (Peeters 2016). The court itself qualifies this rule as an ‘open-ended private-law standard’ and identifies there is an obligation to reduce at least 25% in 2020 (thereby not rewarding the upper end of the claim, consisting 40% reduction in 2020). The court refers to the international and EU legal context, which mainly consists of principles at the time of the judicial decision, since there is no binding norm at international or EU level prescribing that states all developed countries, or specifically the Netherlands, has to adhere to 25% (or 40%) emission reduction in 2020 (*Urgenda v The State of the Netherlands*, Civil court of The Hague, the Netherlands, 24 June 2015, para. 4.46).

In its decision, the court amply considers climate science, and observes for instance:

The foregoing leads to the further intermediate conclusion that according to *the current scientific position*, the prevention of dangerous climate change calls for a 450 scenario with an associated reduction target for the Annex I countries, which includes the Netherlands and the EU as a whole, of 25-40% in 2020, and 80-95% in 2050. (emphasis added) (*ibid.*, para. 4.29)

In addition, the court also states that the IPCC (and UNEP) support that immediate action is more cost-effective, although this is only superficially explained in the court decision (*ibid.*, para. 4.71).<sup>24</sup>

<sup>22</sup>To be measured against the emissions in the year 1990.

<sup>23</sup>Partly to be achieved by international emission trading.

<sup>24</sup>With however no precise reference in this para to the specific IPCC statement. A more in depth discussion would be needed to scrutinize how the court dealt with the

Immediately after the publication of the “revolutionary” court decision, a lot of legal commentaries have been published, in English and in Dutch.<sup>25</sup> The case deals with fundamental legal issues, among most prominently the question of whether the court, in view of the prevailing Dutch constitutional balance of powers, overstepped its competence by ordering the government (in fact, the executive and the legislator) to reduce the national emissions more ambitiously than it has to do according to EU law. The way how the court dealt with the scientific component has been less critically examined. One publication stands out for criticizing how the court dealt with the scientific component. The authors of this article, Lucas Bergkamp and Jaap C. Hanekamp qualify the court’s approach towards science as a “short-cut”—with which these authors *inter alia* mean that the court did not call on scientific experts to explain climatic science (Bergkamp and Hanekamp 2015, p. 107). Related to this, the authors argue that the court has overlooked that the IPCC itself states that defining what a dangerous interference with the climate system is involves normative judgments and that science “does not and cannot dictate norms or any action, let alone court rulings” (Bergkamp and Hanekamp 2015, p. 107). In their opinion, the court’s decision may be an example of “scientism” which points at potential failures to understand the limits of science, and, moreover, that it should be better understood that the “scientific consensus” has been “socially constructed” (Bergkamp and Hanekamp 2015, pp. 108, 109). In fact, they express the concern that if courts deal with science as has been done in the Urgenda case, an increased politicization of science may occur. In line with this, another author (Ted Thurlings) argues that translating the 25-40% by 2020 into a legal norm misrepresents the political character of the issue at stake: “The distribution of the necessary reduction [among countries] is thus not just a legal question, but also, and one could argue even foremost, a political one” (Thurlings 2015, p. 4).

The Dutch government appealed against the court decision thereby denying a call from a group of scientists not to do so. The group stated that the court “simply applied existing law and science in order to protect

cost-effectiveness argument and to what extent scientific reports played a role, this falls outside the scope of this article.

<sup>25</sup> It would already be interesting to make a meta-analysis to explore which different perspectives are used in the legal commentaries to the Urgenda court decision. For instance, the position of the court vis-à-vis the executive is one important dimension.

present and future generations from harm” (Avaaz). However, the letter is very general and does not explain the scientific component in detail (particularly the need to follow the 25–40% scenario pointed out by WGG III in 2007).

## REFLECTION

### *Climate Science and the Judiciary: Towards a Shift of Power?*

In both court cases discussed above, claims for more climate change mitigation action by the government have been accepted, and in both cases climate science has seemingly played an important role. Also, in both cases, the judges did not critically call into question the climate science, or, more specifically, the legitimacy or authority of the IPCC. Meanwhile, some important differences can be identified. In the US case (*Massachusetts v EPA*), a claim for regulatory action (to be precise: the competence for regulation of reduction of greenhouse gas emissions cannot be rejected by the EPA) was awarded. According to the judgment, the specific statute itself gave room for regulatory action despite lack of full scientific evidence of the danger of an air pollutant. Here, the court, *with the help of science*, did act in a way which is normally very sensitive, namely to correct an agency decision. Nonetheless, the Dutch case shows a far more dramatic intervention into governmental policies with wide implications for the society as a whole, since the court ordered, on the basis of an unwritten rule of the duty to take care, the State of The Netherlands to increase its mitigation policy to 25% emissions reduction by 2020 to be measured against the base year 1990. While the court developed its reasoning on the basis of various arguments, such as the specific international climate policy and law context, *science constituted an important basis of the court’s decision*, particularly a specific statement of the IPCC indicating a 25–40% emission reduction scenario for the group of developed countries, where the court chose to follow the lower range of the 25–40% projection. The fact that this percentage had been endorsed in political statements, including decisions from the Conference of Parties to the UNFCCC, played an important role for the court, but still the choice to translate the 25–40% emission pathway from a scientific report into a legally binding norm constitutes a tremendous development in climate law. The illustrates the large standard-setting influence that an IPCC statement providing concrete percentages for emission reduction

may have if it is taken over and endorsed in political statements—but not yet put, through applicable procedures involving the legislature branch—in binding commitments. This combination of two on first glance separate ‘powers’ (on the one hand climate science, on the other hand the courts) may lead to a decrease of governmental power—at least from the legislature—where it comes to deciding on respectively the need and intensity of regulation of greenhouse gases. Although it remains to be seen how, in different jurisdictions and depending on the specific claims, such judicial decision-making will further emerge, the observed trend necessitates legal scholarship to map and examine the potential shift of power from the legislative and/or executive branch to the combined force of science and the courts.

### *Towards Activist Case Law?*

Meanwhile, legal literature calls for reflection about the nature of adjudication given the “disruptive phenomenon” of climate change. Fisher and others point at the normative challenge for courts to resolve climate disputes “well”—but how to define then what is “well”? (Fisher et al. 2017, pp. 180, 197). And how to view in this respect judicial activism, which may become manifest when judges do not adjudicate in conformity with the will of the democratically elected governments but order them, thereby referring to scientific reports, to adopt more ambitious climate action than politically decided? Further research is needed to clarify the room for policy-making that is left in scientific reports, such as the choice among different risk scenario’s, and the expected benefits and costs related to such risk scenario’s, and, furthermore, also the choice between the intensity of reducing greenhouse and on the other hand taking and funding adaptation measures to protect against negative effects of global warming. Question then is to what extent courts may or should correct such policy choices. In this respect, courts may function as a fall back option if governments fall short in taking responsibility for protecting human rights and the environment.

Indeed, while it may be much appreciated from an environmental and human rights perspective that protective action is ordered in order to address climate change and a defensive use of uncertain science can be found undesirable (see also Osofsky 2007), the fact that courts would intervene into governmental policies raises itself the question of how judges then justify their own “policy-making”, and merits attention to the

reasoning of the courts with respect to the scientific basis that they have used. One of the questions that need to be examined is whether climate science reports that are referred to in the verdicts are “well” understood and referred to. In this sense, it seems to be necessary that also scientists themselves comment upon court decisions, in order to discuss whether the scientific reports are properly included in the reasoning by the judges—who are obviously in most cases not trained as climate scientists. One may wonder to what extent judges (lawyers) are anyway able to deal with complex climate science, and how use of experts could be helpful in this respect. In both cases discussed above, the judges did not invite climate scientists, or the IPCC representatives, in the courtroom to explain for instance how the 25–40% emission pathway projection can be interpreted also in view of potential damages. This should lead to further discussion in legal scholarship on how courts should use specific climate expertise in the courtroom, and how this could be arranged.

*To What Extent Are External Circumstances Influential, Such as Media Coverage?*

Freeman and Vermeule state that it was the political, cultural, and legal context in which the Supreme Court decided *MA v EPA*: “.. it would have been impossible for the Justices not to know of the growing scientific consensus on climate change, or to be unaware of accusations that the administration was trying to suppress and manipulate agency science” (Freeman and Vermeule 2007, p. 61). It would be interesting to assess, to the extent possible, whether and how the judges in the Urgenda case have been influenced by external circumstances such as the media that have widely covered the Urgenda claim, and, related to that, the dramatic consequences of climate change. While judicial work is conducted by qualified lawyers, this may not prevent them from influences and may also not take away personal beliefs—which may play a role when judges have to determine how they deal with the uncertainty left by science. For instance, Bergkamp and Hanekamp argue in their article about the Urgenda judgment that the judiciary in The Netherlands tends to gravitate towards the centre and left side of the political spectrum (Bergkamp and Hanekamp 2015, p. 103).

Given the fact that judges cannot be held to account for their decisions, except from the requirement to state the arguments for their decision which can then be reviewed in appeal (and of course can also

be discussed by legal scholars, media and hence civil society), it may be difficult to detect the precise influences that personal beliefs and external circumstances like media attention have played for reaching this decision. To get a further understanding, social science research may investigate whether the media provide balanced coverage on climate science and the climate change problem. In connection to this, research towards the beliefs and attitudes among the judiciary towards the climate problem and climate science may be relevant to conduct.

### *The Rebound Effect of Using IPCC Reports in the Courtroom*

The Urgenda case represents a dramatic new step in climate law, since it is the first court decision worldwide where the court demands a state to act more ambitiously with regard to greenhouse gas reduction. It remains to be seen whether the court decision will be upheld in appeal and, moreover, whether courts in other jurisdictions will adopt similar approaches. However, a larger use of IPCC reports in the courtroom, if this trend would become manifest, may have some rebound effect on how scientific reports will be formulated. For example, it would be interesting to explore whether the knowledge that courts may use IPCC reports may have some repercussion on how the IPCC—and particularly also its plenary consisting of governmental representatives and that adopts the major decisions of the IPCC<sup>26</sup>—will decide or formulate specific emission trajectories. At the same time, there is also a need at the side of politicians to get well informed about climate science, and, more specifically, about mitigation options. Section “[A Legal Perspective on the IPCC](#)” of this chapter already explained that the international political community convened under the UNFCCC even wants the IPCC to clarify emission pathways, given that the IPCC is invited by the Conference of the Parties to the UNFCCC to develop “a special report in 2018 on the impacts of global warming of 1.5 °C above pre-industrial levels and related global greenhouse gas emission pathways”.<sup>27</sup> Depending on its formulation and level of detail, an indication of emission pathways may amount to a kind of a normative indication on what emission reduction needs to be applied by

<sup>26</sup>Principles Governing IPCC Work, principle 4, says “Major decisions of the IPCC will be taken by the Panel in plenary meetings”.

<sup>27</sup>Conference of the Parties to the UNFCCC, Decision 1/CP.21, FCCC/CP/2015/10/Add.1 (2015), para. 21.

the international community—or perhaps by subgroups of this community such as developed countries. In other words, this invitation puts the IPCC to the challenge of how and with what precision and detail to formulate global emission pathways, thereby knowing that its texts may be used by claims submitted to courts. This illustrates that while the IPCC, according to its objective, should provide policy-neutral statements, it may not be easy for the IPCC to stay away from statements that may include some policy, and hence, normative direction.<sup>28</sup> At the same time, it may be of great value that the IPCC, with its specific construct of scientists and governmental representatives, plays some role in the formulation of climate change policy ambitions and in the development of legal obligations. However, the extent to which this happens, and whether courts (should) use IPCC reports in order to order more ambitious climate action, thereby replacing governmental decision-making, requires further, preferably multidisciplinary, research.

## CONCLUSION

The mere fact that particularly IPCC reports and also other climate science documents may play an important role in the courtroom leads to fundamental questions that have yet to be comprehensively examined by legal scholarship. What has become clear is that in two seminal decisions, courts have relied on climate science, albeit in different ways also depending on the content of the claim to be adjudicated. It can be expected that, given the rise of climate litigation across the world, and given the fact that the international public law community convening in international treaty negotiations under the umbrella of the UNFCCC invites the IPCC to provide further advice on emission pathways in order to comply with the objectives of the Paris Agreement, the role of climate science will stay important, also in courtrooms. At the same time, as discussed in sect. “[A Legal Perspective on the IPCC](#)”, the IPCC itself has not been uncontested, and also legal literature has provided some critical observations on the decision-making by the IPCC. Also for the future, fundamental legal questions regarding the production of climate

<sup>28</sup> As observed by French and Pontin (2016) who illustrate that the IPCC may have to deal increasingly with this challenge, particularly in Working Group III where the politics of climate change are less translated into authoritative science.

science by the IPCC have to be examined in tandem with the important role taken or given to the IPCC. In this respect, the concept of “global administrative law” may be useful since it examines the legitimacy and accountability of international decision-making, and hence may provide insight into principles according to which the IPCC can be held to account, which may help to prevent the IPCC from further serious contestation. Next to this, systematic research is needed for understanding how science plays an influential role for judicial decision-making, and whether judges pose any conditions when relying on scientific reports. In this respect, it will be interesting to see whether experts will be invited in the courtroom, as has been requested in the claim brought by a group of families against the European Parliament and the Council for strengthening EU climate legislation. Since case law is emerging across the world, research has to be carried out taking the various characteristics of jurisdictions across the world into account. In sum, at least two fundamental legal perspectives should be addressed:

1. How can, from a legal perspective, the production and communication of climate science reports, including IPCC reports, be assessed, and, more precisely, to what extent is the concept of global administrative law a useful approach to check the accountability and legitimacy of the IPCC?
2. To what extent and under which specific circumstances can and should IPCC reports be used in the courtroom to overturn governmental decision-making?

The discussion of these two perspectives is interrelated: how more credibility is given, from a legal perspective, to the IPCC process, how more it may be expected (or, to put it differently, how more it is justified) that courts rely on IPCC reports when judging upon the adequacy of governmental climate decision-making.

The research towards these two major perspectives will need to be broken down in a wide range of specific questions. For instance, the examination of the accountability of the IPCC by means of investigating its transparency needs to include the question of to what extent the procedural right of access to environmental information hold by scientists is applicable, and, if so, how it then should be applied or is already being applied by the courts. Another example is the question of what differences



may appear in judicial adjudication and the role that science thereby plays between for instance developed Western countries and developing Asian countries such as India and the Philippines, where judicial activism in the field of environmental law is already more common practice.

In conclusion, if climate science will be increasingly used in the courtroom for adjudicating claims for more stringent climate action, the credibility of this climate science may find itself in the spotlights. If courts are indeed willing to follow statements from the IPCC or from peer reviewed articles in such a way that this amounts to standard-setting, like a specific emission pathway, the rule-making power of the executive and legislative branch will clearly become less important and may be overturned, as the Urgenda court decision (in first instance) has showed. While this can be an enormous victory for climate protection, this shift of power—or the extent to which it probably takes place—still needs to be objectively identified and discussed, particularly also in view of helping to avoid unjustified contestation of climate science.

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